



Authorization Basis Change Notice

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ABCN Title BOF Facility Design Updates for CTF, CCP, SPF, WTP and PHF

II. Description of the Proposed Change to the Authorization Basis

D. Affected Authorization Basis and Implementing Documents (drawings, procedures, plans, etc):

Title	Document Number	Revision
AB Documents and Proposed AB Documents		
Preliminary Safety Analysis Report to Support Construction Authorization; Balance of Facility Specific Information	24590-WTP-PSAR-ESH-01-002-05	F
Change to a Proposed AB Document – Revision to the BOF PSAR adding facilities/systems to the Construction Authorization Request	24590-WTP-ABCN-ESH-02-014	0
Change to a Proposed AB Document – Revision to the BOF PSAR adding facilities/systems to the Construction Authorization Request	24590-WTP-ABCN-ESH-02-020	0
Chiller/Compressor Plant		
Chiller/Compressor Plant Facility Description	24590-BOF-FD-M-01-004	A
P&ID – BOF Chiller Water System Yard Distribution Piping	24590-BOF-M6-CHW-00001	0
Process Flow Diagram – BOF Chilled Water System (CHW)	24590-BOF-M5-CHW-00001	A
Process Flow Diagram – BOF Plant Service Air System (PSA)	24590-BOF-M5-PSA-00001	B
HVAC-BOF Chiller/Compressor Bldg. 82 Conceptual Layout	24590-BOF-MAK-82-00001	A
Chiller/Compressor Plant Bldg. 82, Fire Alarm and Detection Plan	24590-BOF-E4-FDE-00009	0
BOF Chiller Compr Plant Fire Protection Layout	24590-BOF-M9-FPW-00012	A
Water Treatment Building		
Performance Specification for the Water Treatment Building	24590-BOF-3PS-G000-T0001	A
P&ID – BOF Demineralized Water System Yard Distribution System	24590-BOF-M6-DIW-00001	A
Process Flow Diagram Demineralized Water (DIW)	24590-BOF-M5-DIW-00001	A
Process Flow Diagram Raw Water (RWW) and Process Service Water (PSW)	24590-BOF-M5-PSW-00001	A
Building Code Evaluation for Water Treatment Building	24590-BOF-RPT-ENG-01-007	0 (attached)



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Title	Document Number	Revision
BOF Water Treatment Building Exterior Elevations & Building Section Procurement Drawing	24590-BOF-A2-86-00001	0
Consequence of Chemical Mixing in the Water Treatment Building	24590-BOF-Z0C-86-00001	A
HVAC-BOF – Water Treatment Building 86, Conceptual Layout	24590-BOF-MAK-86-00001	A
Water Treatment Building General Arrangement Plan	24590-BOF-P1-86-00001	0
Water Treatment Building General Arrangement Sections	24590-BOF-P1-86-00002	0
Cooling Tower Facility		
Performance Specification for the Cooling Tower Facility	24590-BOF-3PS-G000-T0002	A
System Description for Plant Cooling Water (PCW) System	24590-BOF-3YD-PCW-00001	A
P&ID – BOF- Plant Cooling Water System Cooling Tower – Distribution Piping (PCW)	24590-BOF-M6-PCW-00001	A (in final approval process)
P&ID – BOF- Plant Cooling Water System Chemical Feed (PCW)	24590-BOF-M6-PCW-00001	A (in final approval process)
Process Flow Diagram Plant Cooling Water (PCW)	24590-BOF-M5-PCW-00001	A
Cooling Tower Facility Description	24590-BOF-FD-M-01-003	A
Cooling Tower General Arrangement Plan & Sections	24590-BOF-P1-83-00001	0
Cooling Tower Bldg. 83 Fire Alarm and Detection Plan	24590-BOF-E4-FDE-00005	0
Cooling Tower Fire Protection Deluge Sprinkler System	24590-BOF-M9-FPW-00021	0
Pump Houses		
Performance Specification for BOF Pump House Facilities	24590-BOF-3PS-G000-T0003	A
BOF Fire Water Pump House Facilities Floor Plans & Door Schedule Procurement Drawing	24590-BOF-A1-84-00001	0
Fire Water Pump House Facility General Arrangement Plan	24590-BOF-P1-84-00001	0
Fire Water Pump House Facility General	24590-BOF-P1-84-00002	0



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Title	Document Number	Revision
Arrangement Section		
Building Code Evaluation for Fire Water Pump Houses	24590-BOF-RPT-ENG-01-015	0
Fire Pump House Facility Description	FD-W375BF-G00007	A
Fire Pump House Facility Description	24590-BOF-FD-M-01-007	A
HVAC-BOF Fire Water Pump House Conceptual Layout	24590-BOF-MAK-84-00001	A
Process Flow Diagram – Fuel Oil Storage and Transfer System	24590-BOF-M5-DFO-00001	A
P&ID – BOF Fuel Oil System Unloading Storage and Boiler Feed	24590-BOF-M6-DFO-00001	A
P&ID – BOF Non-Radioactive Liquid Waste Disposal System	24590-BOF-M6-NLD-00001	A
Piping and Instrumentation Diagram Fire Protection System Fire Water Main Loop System FSW	24590-BOF-M6-FSW-00001	2
P&ID South Fire Water Pump House System FSW	24590-BOF-M6-FSW-00002	0
P&ID North Fire Water Pump House System FSW	24590-BOF-M6-FSW-00003	0
P&ID Fire Water Storage Tanks System FSW	24590-BOF-M6-FSW-00004	0
P&ID - BOF Process Service Water System Process Service Water Storage, Pumps, & Distribution	24590-BOF-M6-PSW-00001	A
Steam Plant		
Process Flow Diagram – BOF L.P. Steam and Condensate	24590-BOF-M5-SCW-00001	A
Performance Specification for the Steam Plant Facility	24590-BOF-3PS-G000-T0004	A
BOF Steam Plant Facility Floor Plant & Door Schedule Procurement Drawing	24590-BOF-A1-85-00001	0
BOF Steam Plant Facility Exterior Elevations & Building Section Procurement Drawing	24590-BOF-A2-85-00001	0
Steam Plant Facility Description	24590-BOF-FD-M-01-0001	A
Steam Plant Facility General Arrangement Plan	24590-BOF-P1-85-00001	A
Steam Plant Facility General Arrangement Section	24590-BOF-P1-85-00002	A
P&ID – Steam Plant Condensate Surge Tank	DWG-W375BF-M00147	D



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E. Describe the proposed changes to the Authorization Basis documents. Include specific references to the AB documents and design documents that are to be changed:

Preliminary Safety Analysis Report to Support Construction Authorization; Balance of Facility Specific Information - 24590-WTP-PSAR-ESH-01-002-05 Revision F and ABCN's, requires updating to reflect the current design concept for subcontract award:

1. Section 2, subsection entitled "Chiller/Compressor Plant"
 - Delete references to the "instrument service air system" and clarify that plant service air system is used for instrument air.
 - Add reference to the LAB for chilled water and plant service air services.
2. Section 2, subsection entitled "Water Treatment Building and Storage Tanks"
 - Delete reference to plant cooling water chemical treatment equipment and bermed area
 - Delete reference to softened process water supply to the steam plant
 - Add statement that the building does not present radiological or chemical hazards
 - Add references to reverse osmosis unit
 - Clarify that process service water and/or demineralized water will be used to dilute cold chemical feeds.
 - Replace reference to offsite regeneration of demineralizers with reverse osmosis units.
3. Section 2, subsection entitled "Cooling Tower Facility"
 - Delete reference to chemical storage in the Water Treatment Building
 - Add chemical storage and metering pumps
 - Clarify enclosure(s) for electrical/chemical storage/mechanical equipment and not for fire alarm valves
 - Replace references to fire protection sprinklers and wood construction with FM approved construction
 - Delete references to acid treatment chemical storage and metering pumps.
4. Section 2, subsection entitled "Non-Dangerous, Non-Radioactive Liquid Effluent Facility"
 - Replace reference to water softener regenerate with reverse osmosis reject stream
5. Section 2, subsection entitled "Fuel Oil Storage Facility"
 - Delete references to steam plant fuel oil day tanks
6. Section 2, subsection entitled "Steam Plant"
 - Delete references to hot water, hot water boilers, hot water pumps and equipment
 - Delete references to fuel oil day tanks
 - Add reference to a control room
 - Clarify that there are multiple steam boilers
7. Appendix 2A Balance of Facility Figures
 - Update titles.



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E. Describe the proposed changes to the Authorization Basis documents. Include specific references to the AB documents and design documents that are to be changed:

8. Appendix 2A, Figure entitled "Chiller/Compressor Plant Plan at Elevation 0 ft General Arrangement"

- Update drawing to current configuration.

9. Appendix 2A, Figure entitled "Process Flow for Process Air and Instrument Air"

- Delete "and Instrument Air" from the title
- Show cooling water instead of chilled water for compressor cooling
- Show receivers as indoor
- Delete separate instrument air distribution piping

10. Appendix 2A, Figure entitled "Process Flow Diagram Chilled Water System"

- Delete distribution to the Switchgear building and BOF switchgear building
- Add pumps in the end use facility circuits and a bypass to allow separate chiller and distribution flow circulation.

11. Appendix 2A, Figure entitled "Water Treatment Building General Arrangement"

- Delete PCW chemical storage, metering pumps and chemical storage.

12. Appendix 2A, Figure entitled "Process Flow Diagram for Water Treatment Systems"

- Delete water softener
- Show demineralized water supply to the steam plant
- Replace demineralizer with reverse osmosis unit.

13. Appendix 2A, Figure entitled "Cooling Tower and Pumps Plan at Elevation 0 ft General Arrangement"

- Replace reference to 24590-BOF-P1-83-00001 with reference to design build subcontract.

14. Appendix 2A, Figure entitled "Process Flow diagram Non-Radioactive Liquid Waste Disposal System"

- Update configuration of influent piping.

15. Appendix 2A, Figure entitled "Steam Plant Facility General Arrangement Plan"

- Replace reference to 24590-BOF-P1-85-00001 with reference to design build subcontract.

16. Appendix 2A, Figure entitled "Steam Plant Facility General Arrangement Section"

- Replace reference to 24590-BOF-P1-85-00002 with reference to design build subcontract.

17. Section 3, subsection entitled "Process and By-Product Chemicals"

- Update to show chemicals in the cooling tower facility rather than the water treatment facility
- Delete reference to Section 3, Table entitled "Chemicals in the Cooling Tower Facility".

18. Section 3, subsection entitled "Water Treatment Building and Storage Tanks"

- Delete reference to chemical treatment chemicals and Section 3, Table entitled "Chemicals in the Water Treatment Building"



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E. Describe the proposed changes to the Authorization Basis documents. Include specific references to the AB documents and design documents that are to be changed:

- Move Chemical Interactions paragraphs and reference to Section 3, Table entitled “Matrix of Possible Interactions of the Chemicals in the Cooling Tower Facility” to Section 3, subsection entitled “Cooling Tower Facility”.
- Delete reference to bermed area.

19. Section 3, subsection entitled “Cooling Tower Facility”

- Add Chemical Interactions paragraphs and reference to Section 3, Table entitled “Matrix of Possible Interactions of the Chemicals in the Cooling Tower Facility” from Section 3, subsection entitled “Water Treatment Building and Storage Tanks”.
- Add reference to Section 3, Table entitled “Chemicals in the Cooling Tower Facility”
- Delete acid treatment text.
- Change reference to chemical storage in Water Treatment Building to an enclosure
- Change reference to wooden structure with fire protection system to Factory Mutual approved construction without fire protection
- Change first conclusion to “There are no radiological or chemical hazards beyond those found in normal industrial facilities associated with Cooling Tower Facility.”.

20. Section 3, subsection entitled “Fire Water Pump Houses and Fire Water Storage Facility”

- Clarify that “each” fire water pump house contains a fire pump which supplies water to an underground fire water loop.

21. Section 3, subsection entitled “Non-Dangerous Non-Radioactive Liquid Waste Disposal Facility”

- Delete reference to “plant wash vessel” in recycle piping connection to the pretreatment facility
- Replace reference to water softener regenerant to RO unit reject stream.

22. Section 3, subsection entitled “Fuel Oil Storage Facility”

- Delete references to steam plant fuel oil day tanks

23. Section 3, subsection entitled “Steam Plant”

- Delete references to hot water
- Delete references to fuel oil day tanks

24. Section 3, Table entitled “Chemicals in the Water Treatment Building”

- Change title text from “Water Treatment Building” to “Cooling Tower Facility”
- Add note “Actual rates will be determined by design –build subcontract.”.

25. Section 3, Table entitled “Matrix of Possible Interactions of the Chemicals in the Water Treatment Facility”

- Change title text from “Water Treatment Facility” to “Cooling Tower Facility”.

26. Section 3, Table entitled “Chemicals in the Cooling Tower Facility”

- Delete.



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E. Describe the proposed changes to the Authorization Basis documents. Include specific references to the AB documents and design documents that are to be changed:

27. Section 3, Table entitled "Energy Sources of the BOF"

- Delete reference to instrument air at 100 psig and update normal process air to approximately 150 psig
- Update domestic water pressurize to approximately 80 psig
- Update cooling water pressurize to approximately 80 psig
- Delete "Thermal-Combustion-Wood in cooling tower"
- Delete reference to hot water from ventilation hot water system.

F. Explain why the change is needed:

Chiller/Compressor Plant

- Instrument air quality air is distributed by the plant service air system, eliminating the need a for a separate instrument air system.
- Plant service air and chilled water are supplied to the Laboratory.
- End user circulating pumps are added to reduce overall pumping horsepower.
- Service to switchgear and BOF switchgear building has been eliminated.

Water Treatment Building

- Chemical treatment storage and metering pumps are being moved from the Water Treatment Building (WTB) to the CTF.
- Water softeners are deleted from the WTB and demineralized water distributed to the steam plant for boiler makeup.
- Demineralized water is produced by reverse osmosis units rather than IX columns.
- Pressure setpoint is updated for domestic water.

Cooling Tower Facility

- Acid chemical treatment and equipment located in the Cooling Tower Facility (CTF) will not be used.
- Chemical treatment storage and metering pumps are being moved from the Water Treatment Building (WTB) to the CTF.
- The cooling tower will be FM approved construction, not wood construction, and does not require fire sprinklers.
- The design-build subcontractor design will vary from the Waste Treatment Plant (WTP) CTF general arrangement plan. The WTP Cooling Tower Facility general arrangement drawing, copied and referenced in the PSAR, shows a four cell tower with pumps at the west end, and acid treatment chemical storage/metering pumps. Acceptable proposals located the pumps on the north side of the tower with six cells and with chemical treatment other than acid treatment inside an enclosure.
- Pressure setpoint is updated for plant cooling water.



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F. Explain why the change is needed:

Fire Pump Houses

- Two fire pump houses are provided each with a diesel driven pump.

Non-Dangerous, Non-Radioactive Liquid Effluent Facility

- Water softener regenerant is eliminated.
- Reverse osmosis reject stream is added.
- Influent streams are consolidated.

Fuel Oil Storage Facility

- Steam plant is not using fuel oil day tanks.

Steam Plant

- Fuel Oil day tanks will not be used.
- Ventilation hot water system is not distributed from the Steam Plant. Only steam is distributed.
- Design-build subcontract layout may be different than the WTP general arrangement plan.

III. Summary of Safety Evaluation

- G. DOE approval of this AB change is not required because the Safety Evaluation has determined that the change meets all the criteria for Contractor approval of the change.

Summarize the results of the Safety Evaluation by checking the statements below for Administrative Control changes OR Facility changes, not both. Add clarifying remarks, as necessary, to provide complete and accurate information.

Safety Evaluation No. 24590-WTP-SE-ENS-02-021 Rev 0

☐ For an Administrative Control:

This administrative control change does not affect the SRD. The change falls beneath the level of detail described in the Code of Federal Regulations applicable to the project (10 CFR 820, 10 CFR 830, and 10 CFR 835). The change conforms to the requirements in the top-level safety standards (e.g., DOE/RL-96-0006). The change provides adequate safety because the applicable questions on the Safety Evaluation have been answered in a way that ensures adequate safety following the change. The change conforms to contract requirements and will not result in inconsistencies with other AB or authorization agreement commitments or descriptions.

Remarks:



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☒ For a Facility Control:

This facility change does not affect the SRD. The change does not create a new DBE or increase the frequency or consequence of an analyzed DBE. The change does not result in a decrease in the safety function of an ITS SSC or change how an SDC SSC meets its respective safety function. The change falls beneath the level of detail described in the Code of Federal Regulations applicable to the project (10 CFR 820, 10 CFR 830, and 10 CFR 835). The change conforms to the requirements in the top-level safety standards (e.g., DOE/RL-96-0006). The change provides adequate safety because the applicable questions on the Safety Evaluation have been answered in a way that ensures adequate safety following the change. The change conforms to contract requirements and will not result in inconsistencies with other AB or authorization agreement commitments or descriptions.

Remarks:

NO ITS SSC's have been impacted due to this change.

H. Attachments (if any):